Massachusetts Department of Public Health
Bureau of Environmental Health

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Recreational Use of Water Bodies on or Near
the Massachusetts Military Reservation (MMR)

Community Fact Sheet – Annual Update, June 2008

This fact sheet addresses health concerns related to recreational use of selected Upper Cape Cod water bodies and includes results of recent chemical testing (see map). Bacterial sampling is performed routinely for swimming waters by the boards of health during the summer months. For specific information about bacterial sampling, contact your local board of health. (See last page for local Boards of Health contact information).

Based on the available data, water bodies tested near the MMR are safe for swimming, wading, boating, and catch-and-release fishing. Please be advised that the Massachusetts Department of Public Health (MDPH) has posted fish consumption advisories due to elevated mercury levels in many ponds across Massachusetts, including Johns Pond, Ashumet Pond, Snake Pond, Mashpee-Wakeby Pond, and Peters Pond.

Q: Can I safely swim, wade or boat in surface waters at or near the MMR?

A: Yes, based on the currently available chemical data, all of the water bodies shown in Table 1 are safe for swimming, wading and boating. Table 1 summarizes available data for the 31 water bodies on or near the MMR that were sampled and analyzed for contaminants at least once between 1997 and 2008. Low levels of volatile and semi-volatile organic compounds (VOCs & SVOCs) were occasionally detected in some surface waters. None of these detections appear to pose any health concern for these recreational activities.

Q: Can I safely fish in surface waters at or near the MMR?

A: Catch-and-release fishing, which means fish that are caught recreationally are released back into the water body unharmed, is safe for all water bodies near the MMR. However, mercury has been detected in fish at levels warranting a Public Health Fish Consumption Advisory for fish from Johns, Ashumet, Snake, Mashpee-Wakeby, and Peters ponds. Refer to Table 1 for a detailed explanation of these advisories. Mercury levels in these fish are not believed to be MMR related.

In addition, many Bullhead Catfish in Johns and Ashumet ponds have papillomas (wart-like growths). Although papillomas may be unappealing for aesthetic reasons, there are no known health concerns from eating fish with papillomas.

Q: What is the MDPH statewide fish consumption advisory for mercury?

A: In 1994, the MDPH issued a statewide advisory recommending that until more representative information is available on mercury concentrations in fish in Massachusetts freshwater bodies, women should refrain from consumption of freshwater fish while they are pregnant. In 2001, MDPH expanded this advisory to include women of childbearing age who may become pregnant, nursing mothers, and children under 12 years of age. The new advisory also includes several marine fish species. Please be advised, however, that this advisory does not apply to fish stocked in freshwater lakes and ponds.

Mercury is naturally occurring in the earth's crust and thus natural land erosion may contribute to releases of mercury into the environment. Inorganic mercury may enter the air through burning of fossil fuels, mining, and waste or industrial emissions. In freshwater bodies, small organisms convert inorganic mercury to the organic form, methyl mercury. Methyl mercury enters the aquatic food chain by binding with particles and sediment eaten by fish. MDPH has issued other important recommendations for fish consumption. For more information, call 617-624-5757 or visit the MDPH website at http://www.mass.gov/dph/environmental_health.

Q: How can the ponds be safe for swimming but contain fish that are not safe for eating?

A: While there is a fish consumption advisory for mercury, there is no known health concern related to mercury from activities such as swimming, boating or catch-and-release fishing in ponds that have health advisories. Because fish build up mercury levels in their tissue, mercury can accumulate in fish to levels that are sometimes thousands of times greater than the surrounding waters. Swimming, boating and handling of fish are not likely to expose individuals to elevated levels of mercury.

Q: Ethylene dibromide (EDB), Royal Demolition Explosive (RDX), and perchlorate, were detected in 2001 and 2002 in groundwater below Snake Pond. Are there possible health impacts related to recreational use of Snake Pond?

A: Surface water samples from the public beach and Camp Good News areas of Snake Pond have been collected since 1996 for EDB, and since 2001 for RDX and perchlorate. None of these compounds have been detected in surface water based on data available through 2007. Thus, adverse health effects are not expected from opportunities for exposure to these chemicals. As a precautionary measure, sampling of surface water will continue as in previous recreational seasons. During 2008, samples will be analyzed for explosives, perchlorate, EDB and VOCs.

Q: Should I be concerned about ethylene dibromide (EDB) in the Coonamessett and Quashnet rivers?

A: EDB was discovered to be present in surface water of the Coonamessett River in 1996 and in the Quashnet River in 1997. A number of cleanup actions have been taken since then, and routine monitoring of these rivers and their associated bogs is ongoing. While some long-term residents may have been at risk for exposure in the past, current sampling data do not suggest exposures that would present health concerns. Since May 2000, no EDB has been detected in the Coonamessett River. However, EDB continued to be detected primarily in the Quashnet River between two adjacent bogs (K2 and K6 bogs) and sporadically in one bog ditch associated with the Coonamessett River. Infrequent contact with these EDB levels in these bogs is not likely to present a health hazard.

Q: Should I be concerned about trichloroethylene (TCE) and tetrachloroethylene (PCE) in the Backus River?

A: In August 2003, levels of TCE and PCE originating from the Ashumet Valley plume were found in surface water upwelling into a ditch associated with cranberry bogs adjacent to the Backus River. Investigations in 2007 showed continued detections of a PCE in surface water, but at lower concentrations than in 2006 (from 9.3 ppb in 2006 to 1.9 ppb in 2007, or below the drinking water standard for of 5 ppb PCE). Infrequent contact with current levels of PCE and TCE in these bogs during recreational use or for cranberry workers are not likely to present a heath hazard.

Q: How can it be safe to swim and fish in Johns and Ashumet ponds when there are contaminated groundwater plumes upwelling at the bottom?

A: Storm Drain-5 (SD-5) and Chemical Spill-10 (CS-10) groundwater plumes have been found to be upwelling in the northwest portion of Johns Pond. CS-10 and Ashumet Valley groundwater plumes have also been found to be upwelling in the northwest portion of Ashumet Pond. However, no plume-related contaminants have been detected in Johns or Ashumet ponds' surface water since 2000. [Historically, the highest concentration detected in Johns Pond surface water was 3.46 parts per billion (ppb) of trichloroethylene (TCE) (the primary contaminant of concern) about 6 inches above the bottom of the pond in testing in January 1999. The safe drinking water standard is 5 ppb.] As a precautionary measure, MDPH recommended that AFCEE monitor surface water in Ashumet and Johns ponds throughout the summer season. These samples, collected since 1999 at recreational areas by the Mashpee Board of Health, and more recently AFCEE, showed no detection of plume contaminants in surface water. Surface water samples will also be collected in 2008. Based on available surface water sampling data opportunities for exposure to plume contaminants in Ashumet and Johns Pond surface water are not expected to result in health effects.

Q: Are there any other ponds on the Upper Cape that have contaminants upwelling as a result of non MMR-related groundwater contaminant plumes?

A. The J. Braden Thompson plume, not associated with the MMR, had detections of tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-1,2-DCE), and 1,1,2,2-tetrachloroethane (1,1,2,2-TeCA) in the Pickerel Cove area of Mashpee-Wakeby Pond in July 2005. Testing results showed TCE at a level slightly higher than the drinking water standard. While no drinking water standard exists for 1,1,2,2-TeCA, a cancer risk evaluation guide (CREG) developed by the U.S. Agency for Toxic Substances and Disease Registry is available for comparison. 1,1,2,2-TeCA was detected above its CREG for drinking water, however, CREG values are derived assuming a daily, lifetime exposure to a compound. Exceedance of a CREG value does not necessarily mean adverse health effects are expected but rather that the compound should be further evaluated. Given that standards and guidelines associated with consumption of drinking water are purposely conservative and that compounds were detected near the bottom of the pond, recreational uses of Mashpee-Wakeby Pond are not expected to result in adverse health effects.

For more information on this fact sheet, contact MDPH/BEH at (800) 319-3042.

OTHER SOURCES OF INFORMATION

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